# Material Safety Data Sheet

**Preparation Date:** 10-Aug-2007 **Revision Date:** 19-Nov-2007 **Revision Number:** 1

## SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

**Supplier(s):**

Orica Canada Inc.
Maple Street
Brownsburg, QC
For MSDS Requests: 450-533-4201

Orica USA Inc.
33101 E. Quincy Avenue
Watkins, CO 80137-9406
For MSDS Requests: 1-303-268-5000

**Product Name:** **Apex Gold 2501 Series (CANADA DOT)**
**Product Code:** 20163
**Alternate Name(s):** Apex Gold –2551, 2561, 2571, 2581
**UN-No:** UN0332
**Recommended Use:** A booster-sensitive emulsion explosive.

Emergency Telephone Number: FOR CHEMICAL EMERGENCIES (24 HOUR) INVOLVING TRANSPORTATION, SPILL, LEAK, RELEASE, FIRE OR ACCIDENTS: IN CANADA AND US CALL THE ORICA TRANSPORTATION EMERGENCY RESPONSE SYSTEM AT 1-877-561-3636. IN THE U.S. FOR LOST, STOLEN OR MISPLACED EXPLOSIVES CALL: BATF 1-800-800-3855. FORM ATF F 5400.0 MUST BE COMPLETED AND LOCAL AUTHORITIES (STATE/MUNICIPAL POLICE, ETC.) MUST BE ADVISED.

## SECTION 2 - HAZARD IDENTIFICATION

**Emergency Overview:** Risk of explosion by shock, fire or other sources of ignition. May cause skin irritation and/or dermatitis. Irritating to eyes. Harmful if swallowed. Oxidizing agent.

| **Appearance:** | **Physical State:** | **Odor:** |
|---|---|---|
| Pink Viscous Liquid | Liquid | Diesel/Vinegar like |

## SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

| **Chemical Name** | **CAS-No** | **Weight %** |
|---|---|---|
| Ammonium Nitrate | 6484-52-2 | 70 - 80 |

## SECTION 4 - FIRST AID MEASURES

**Eye contact:** Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Immediate medical attention is required.

**Skin contact:** Wash off immediately with soap and plenty of water, removing all contaminated clothes and shoes. If skin irritation persists, call a physician.

**Inhalation:** Move victim to fresh air. Give artificial respiration ONLY if breathing has stopped. Give cardiopulmonary resuscitation (CPR) if there is no breathing AND no pulse. Obtain medical advice IMMEDIATELY.

**Ingestion:** Immediate medical attention is required. Do not induce vomiting. Clean mouth with water and afterwards drink plenty of water. If spontaneous vomiting occurs, have victim lean forward with head positioned to avoid breathing in of vomitus, rinse mouth and administer more water. Never give anything by mouth to an unconscious person.

**Notes to physician:** Symptomatic. Administer oxygen if there are signs of cyanosis. If clinical condition deteriorates, administer 10cc Methylene Blue intravenously. It is unlikely for this to be required with methemoglobin level of less than 40%.

## SECTION 5 - FIRE-FIGHTING MEASURES

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| **Flammable properties:** | Not itself combustible but assists fire in burning materials. The product does not flash. |
| **Suitable extinguishing media:** | DO NOT FIGHT FIRES INVOLVING EXPLOSIVES. Evacuate surrounding areas. When controlling fire before involvement of explosives, fire-fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear. Water may be applied through fixed extinguishing system (sprinklers) as long as people need not be present for the system to operate. Water may be used on small fires. |
| **Unsuitable extinguishing media:** | DO NOT FIGHT FIRES INVOLVING EXPLOSIVES. Attempts to smother a fire involving this product will be ineffective as it is its own oxygen source. Smothering this product could lead to decomposition and explosion. This product is more sensitive to detonation if contaminated with organic or oxidizable material or if heated while confined. Unless the mass of product on fire is flooded with water, re-ignition is possible. |
| **Specific hazards arising from the chemical:** | DO NOT FIGHT FIRES INVOLVING EXPLOSIVE MATERIALS. Immediately evacuate all personnel from the area to a safe distance. Guard against re-entry. This product is a high explosive with a mass detonation hazard. |
| **Protective equipment and precautions for firefighters:** | As in any fire, wear self-contained breathing apparatus pressure-demand, NIOSH approved (or equivalent) and full protective gear |

## SECTION 6 - ACCIDENTAL RELEASE MEASURES

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|---|---|
| **Methods for containment:** | No information available. |
| **Methods for cleaning up:** | Avoid the use of metal tools containing iron and/or copper. Be careful to avoid shock, friction, and contact with grit. Collect product for recovery or disposal. For release to land, contain discharge by constructing dykes or applying inert absorbent; for release to water, utilize damming and/or water diversion to minimize the spread of contamination. Collect contaminated soil and water, and absorbent for proper disposal. Notify applicable government authority if release is reportable or could adversely affect the environment. |
| **Other information:** | Deactivating chemicals:. Detergents will break up emulsions if mixed in. |

## SECTION 7 - HANDLING AND STORAGE

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|---|---|
| **Handling:** | Only properly qualified and authorized personnel should handle and use this product. Wear suitable protective clothing. Do not subject the material to impact, friction between hard surfaces nor to any form of heating and electrostatic discharge. Protect shipping container against physical damage. |
| **Storage:** | Keep away from open flames, hot surfaces and sources of ignition. Store under moderate temperatures recommended by a technical services representative. Store under dry conditions in a well ventilated magazine that has been approved for either detonator storage or explosive storage. Do NOT store explosives in a detonator magazine or detonators in an explosive magazine. Keep away from heat, sparks and flames. Keep containers closed. Explosives should be kept well away from initiating explosives; protected from physical damage; separated from oxidizing materials, combustibles, and sources of heat. Keep away from incompatibles. Do not expose sealed containers to temperatures above 90℃. |

## SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

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|---|---|
| **Other exposure guidelines:** | Ammonium Nitrate: ORICA Guideline 5 mg/ $m^3$ (internal TWA). |
| **Engineering Measures:** | No information available. |
| **Personal Protective Equipment** | |
| **Eye/face protection:** | Tightly fitting safety goggles |
| **Skin protection:** | User should verify impermeability under normal conditions of use prior to general use. |
| **Respiratory protection:** | In case of insufficient ventilation wear suitable respiratory equipment. A NIOSH-approved respirator, if required. |
| **Hygiene Measures:** | Handle in accordance with good industrial hygiene and safety practice |

## SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

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**Appearance:** Pink Viscous Liquid
**Physical State:** Liquid
**pH:** 3-6
**Autoignition Temperature:** 230-265℃ /
**Flammable Limits (Upper):** No data available

**Explosion Power:** ASV 325-440 kJ/100g
**Water Solubility:** slightly soluble

**Vapor Pressure:** -0 (@ 20℃
**Partition Coefficient (n-octanol/water):** No data available

**Odor:** Diesel/Vinegar like
**Viscosity** 30,000- 35,000cps @20℃
**Flash Point:** Not applicable
**Melting Point/Range:** Not available
**Flammable Limits (Lower):** No data available
**Specific Gravity:** 1.20-1.35
**Other Solubility:** Slightly soluble in standard organic solvents.
**Oxidizing Properties:** Oxidizer

## SECTION 10 - STABILITY AND REACTIVITY

**Stability:** Stable under normal conditions. Decomposition Temperature: Ammonium nitrate will spontaneously decompose at 210℃.

**Conditions to avoid:** Impact or shock. Keep away from open flames, hot surfaces and sources of ignition. Not expected to be sensitive to static discharge.

**Incompatible materials:** Avoid oxidizable materials, metal powder, bronze & copper alloys, fuels (e.g. lubricants, machine oils), fluorocarbon lubricants, acids, corrosive liquids, chlorate, sulphur, sodium nitrite, charcoal, coke and other finely divided combustibles. Strong oxidizing and reducing agents. Carbon oxide. Nitrogen oxides (NOx).

**Hazardous decomposition products:** Hydrogen chloride gas. Phosgene.

**Hazardous Polymerization:** Hazardous polymerization does not occur. Explosive material under shock conditions.

## SECTION 11 - TOXICOLOGICAL INFORMATION

**Acute Toxicity**

**Product Information:** May cause skin irritation. Irritating to eyes. May cause liver damage. May cause kidney damage. May cause methemoglobinemia. Harmful if swallowed.

| Chemical Name | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|---|---|---|---|
| Ammonium Nitrate | 2217 mg/kg Rat | 3000 mg/kg Rabbit | 88.8 mg/L Rat 4 h |

**Subchronic Toxicity (28 days):** Ammonium nitrate: Ingestion may cause methemoglobinemia. Initial manifestation of methemoglobinemia is cyanosis, characterized by navy lips, tongue and mucous membranes, with skin color being slate grey. Further manifestation is characterized by headache, weakness, dyspnea, dizziness, stupor, respiratory distress and death due to anoxia. If ingested, nitrates may be reduced to nitrites by bacteria in the digestive tract. Signs and symptoms of nitrite poisoning include methemoglobinemia, nausea, dizziness, increased heart rate, hypotension, fainting and, possibly shock. Sodium perchlorate: May cause symptoms of kidney damage that generally progress from oliguria, to blood in the urine, to total renal failure.

**Chronic toxicity:** May cause methemoglobinemia.

**Carcinogenicity:** The ingredients of this product are not classified as carcinogenic by ACGIH (American Conference of Governmental Industrial Hygienists) or IARC (International Agency for Research on Cancer), not regulated as carcinogens by OSHA (Occupational Safety and Health Administration), and not listed as carcinogens by T\NTP (National Toxicology Program).

**Irritation:** Irritating to eyes. May cause irritation of respiratory tract. May cause skin irritation in susceptible persons.

**Corrosivity:** Not applicable.

**Sensitization:** Not applicable.

**Reproductive effects:** No information is available and no adverse reproductive effects are anticipated. No information is available and no adverse reproductive effects are anticipated.

**Developmental effects:**

**Target Organ:** Liver, Kidney, Eyes, Skin, Urinary Tract, Gastrointestinal tract (GI), Blood, Endocrine System, Immune system.

## SECTION 12 - ECOLOGICAL INFORMATION

**Ecotoxicity effects:** Dissolves slowly in water. Harmful to aquatic life at low concentrations.
Environmental Effects: Can be dangerous if allowed to enter drinking water intakes. Do not contaminate domestic or irrigation water supplies, lakes, streams, ponds, or rivers.

**Persistence/ Degradability:** Water-insoluble and remains explosive. With extended time periods, some ingredients will solubilize. Over extended time periods, some ingredients will be leached out if package integrity is lost.

**Mobility in Environmental Media** Dissolves slowly in water.

## SECTION 13 - DISPOSAL CONSIDERATIONS

**Waste Disposal Method:** Burn under supervision of an expert at an explosive burning ground or destroy by detonation in boreholes, in accordance with applicable local, provincial and federal regulations. Call upon the services of an Orica Technical Representative.

## SECTION 14 - TRANSPORT INFORMATION

**DOT Proper Shipping Name:** Explosive, Blasting Type E
**Hazard Class:** 1.5D
**UN-No:** UN0332
**Packing group:** II
**TDG Proper Shipping Name:** Explosive, Blasting Type E
**Hazard Class/Division:** 1.5D
**UN-No:** UN0332
**Packing group:** II

### Transportation Emergency Telephone Number: 1-877-561-3636

## SECTION 15 - REGULATORY INFORMATION

**CANADIAN CLASSIFICATION:** This product has been classified in accordance with the hazard criteria of the CPR (Controlled Products Regulations) and this MSDS contains all the information required by the CPR

**WHMIS hazard class:** This product is an explosive and is not regulated by WHMIS.

**USA CLASSIFICATION:**

SARA Regulations Sections 313 and 40 CFR 372: This product contains the following toxic chemical(s) subject to reporting requirements, Ammonium Nitrate (6484-52-2), at 75.53%.

**SARA 311/312 Hazardous Categorization**

**Acute Health Hazard:** Yes
**Chronic Health Hazard:** Yes
**Fire Hazard:** Yes
**Reactive Hazard:** No
**Sudden Release of Pressure Hazard:** No
**Ozone Protection and 40 CFR 42:** No reportable quantities of ozone depleting agents
**Other Regulations/Legislations which apply to this product:** Massachusetts Right-to-Know, Pennsylvania Right-to-Know, New Jersey Right-to-Know, Rhode Island Right-to-Know, Florida, New Jersey Special Health Hazard Substance List, Minnesota Hazardous Substance List, California Director's List of Hazardous Substances, California Proposition 65.

**TSCA:** Complies **DSL:** Complies **NDSL:** Complies

The components in the product are on the following International Inventory lists:

| Chemical Name | TSCA | DSL | NDSL | ENCS | EINECS | ELINCS | CHINA | KECL | PICCS | AICS |
|---|---|---|---|---|---|---|---|---|---|---|
| Ammonium Nitrate | X | X | - | X | X | - | X | X | X | X |

Legend: X - Listed

## SECTION 16 - OTHER INFORMATION

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**Prepared By:** Safety Health & Environment
303-268-5000

**Preparation Date:** 10-Aug-2007
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End of MSDS